

WHAT IS CLAIMED IS:

1. A system for feeding fuel to an internal combustion engine, comprising:
a tank that accumulates evaporative fuel;
a pump that sucks and discharges the accumulated fuel and air outside the
5 tank;
a first device that allows the accumulated fuel to be discharged to the engine;
a second device that allows the outside air to be sucked into the tank; and
an electronic control unit (ECU) that controls the pump.
- 10 2. The system as claimed in claim 1, wherein the first device comprises a delivery valve, and the second device comprises an intake valve, the delivery valve and the intake valve being operative when the pump rotates in first and second directions.
- 15 3. The system as claimed in claim 2, wherein the ECU conducts gas-tightness diagnosis on the tank, the diagnosis being carried out such that when the engine is stopped, the pump is rotated in the second direction to increase a pressure within the tank.
- 20 4. The system as claimed in claim 2, further comprising:
an evapopurge apparatus that conducts communication between the engine and the tank when the engine is operated with the pump rotated in the first direction, the evapopurge apparatus discharging fuel vapor evaporated in the tank to an intake of the engine,
wherein the ECU conducts gas-tightness diagnosis on the tank and the
25 evapopurge apparatus, the diagnosis being carried out such that when the engine is stopped, the pump is rotated in the second direction, and the evapopurge apparatus is isolated from the outside, increasing a pressure within the tank and the evapopurge apparatus.

5. The system as claimed in claim 4, wherein the evapopurge apparatus comprises a canister, a purge control valve, and an air introduction valve.

6. The system as claimed in claim 1, wherein the pump is arranged inside the tank.

7. The system as claimed in claim 1, wherein the pump is arranged outside the tank.

8. The system as claimed in claim 2, wherein the delivery valve and the intake valve each comprise a check valve.

9. The system as claimed in claim 2, wherein the delivery valve comprises a normally-open solenoid valve, and the intake valve comprises normally-closed solenoid valve.

10. The system as claimed in claim 1, wherein the first and second devices comprise selector valves arranged at an intake and a delivery of the pump, respectively, the selector valves being switched between a fuel-pump position and an air-pump position.

11. The system as claimed in claim 10, wherein the ECU conducts gas-tightness diagnosis on the tank, the diagnosis being carried out such that when the engine is stopped, the selector valves are switched to the air-pump position so as to increase a pressure within the tank.

12. The system as claimed in claim 10, further comprising:
an evapopurge apparatus that conducts communication between the engine and the tank when the engine is operated with the selector valves switched to the fuel-pump position, the evapopurge apparatus discharging evaporative emission

evaporated in the tank to an intake of the engine,

wherein the ECU conducts gas-tightness diagnosis on the tank and the evapopurge apparatus, the diagnosis being carried out such that when the engine is stopped, the selector valves are switched to the air-pump position, and the evapopurge apparatus is isolated from the outside, increasing a pressure within the tank and the evapopurge apparatus.

13. The system as claimed in claim 10, wherein the selector valves are integrated as a valve unit, wherein the valve unit further comprises a pipe-side casing, a disc valve element, and a valve-element drive.

14. A system for feeding fuel to an internal combustion engine, comprising:
a tank that accumulates evaporative fuel;
a pump that rotates in first and second directions, the pump sucking fuel accumulated in the tank and discharging it to the engine when rotating in the first direction, the pump sucking air outside the tank and discharging it into the tank when rotating in the second direction;
a delivery valve that allows fuel accumulated in the tank to be discharged to the engine when the pump rotates in the first direction;
an intake valve that allows air outside the tank to be sucked into the tank when the pump rotates in the second direction; and
an electronic control unit (ECU) that controls the pump.

15. A system for feeding fuel to an internal combustion engine, comprising:
a tank that accumulates evaporative fuel;
a pump that sucks and discharges the accumulated fuel and air outside the tank;
a switching device that switches between a fuel-pump position where the accumulated fuel is sucked and discharged to the engine and an air-pump position

where the outside air is sucked and discharged into the tank; and
an electronic control unit (ECU) that controls the pump.

16. A system for feeding fuel to an internal combustion engine, comprising:
- 5 a tank that accumulates evaporative fuel;
pump means for sucking and discharging the accumulated fuel and air outside
the tank;
first means for allowing the accumulated fuel to be discharged to the engine;
second means for allowing the outside air to be sucked into the tank; and
10 an electronic control unit (ECU) that controls the pump.